

# **2016 Charleston Area Stormwater Pond Management Conference**

## **Budgeting and Funding for Stormwater Ponds**

November 3, 2016

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ASSOCIATES

Capital  
Reserve  
Consultants

# Introduction:

My first professional experience with  
Storm Water Ponds -

**SNAFU**

**SUSFU**

**FUBAR**

**TARFU**



# **My first experience with Storm Water Ponds - 1982**

**1<sup>st</sup> Planned CLC in QA county!**

**New Chesapeake Bay Critical Area Regs!**

**Rush to Open House!**

**Hottest Day of the year!**

**Pond Algae!**

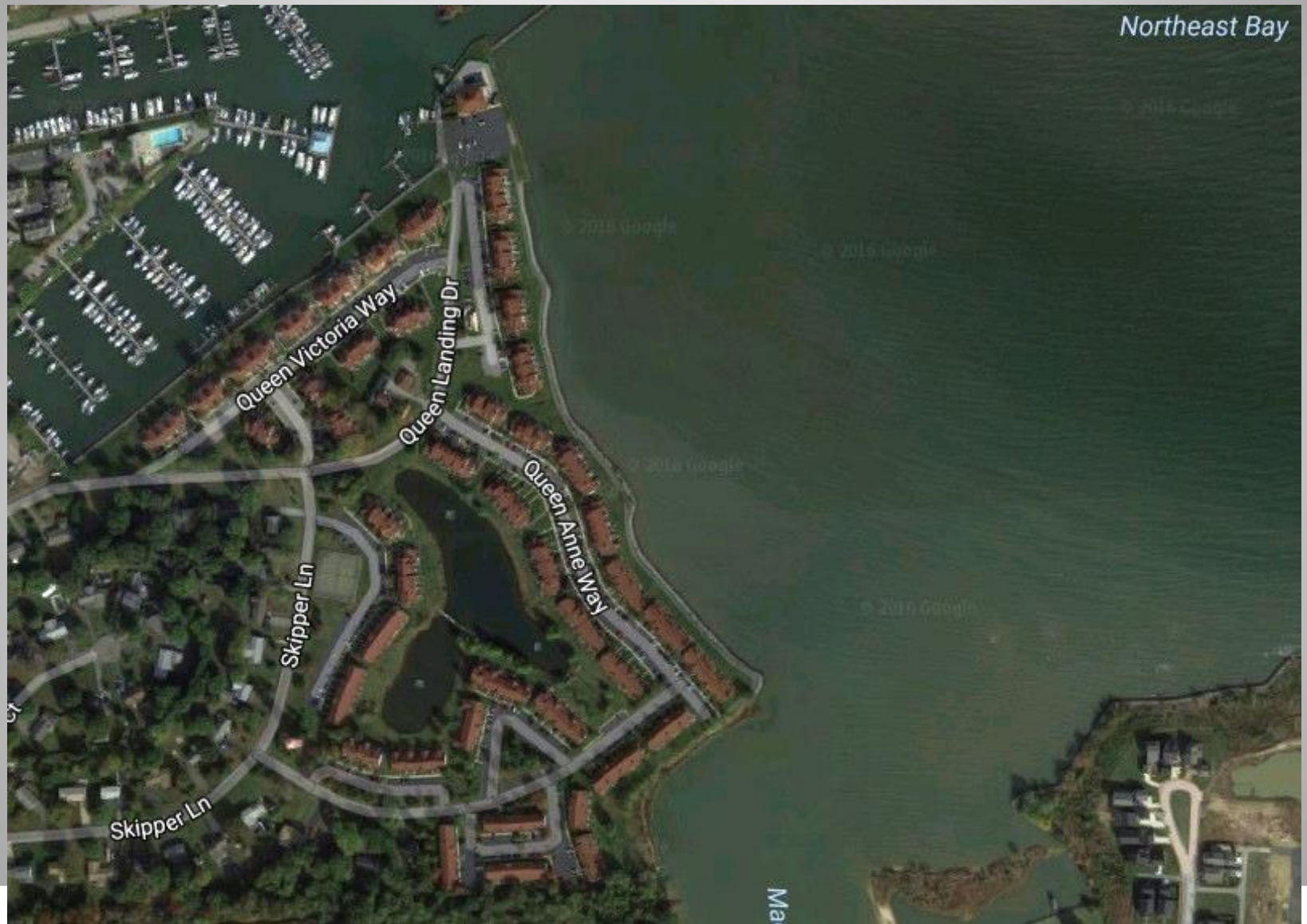
**Local Aquifer Dried Up!**

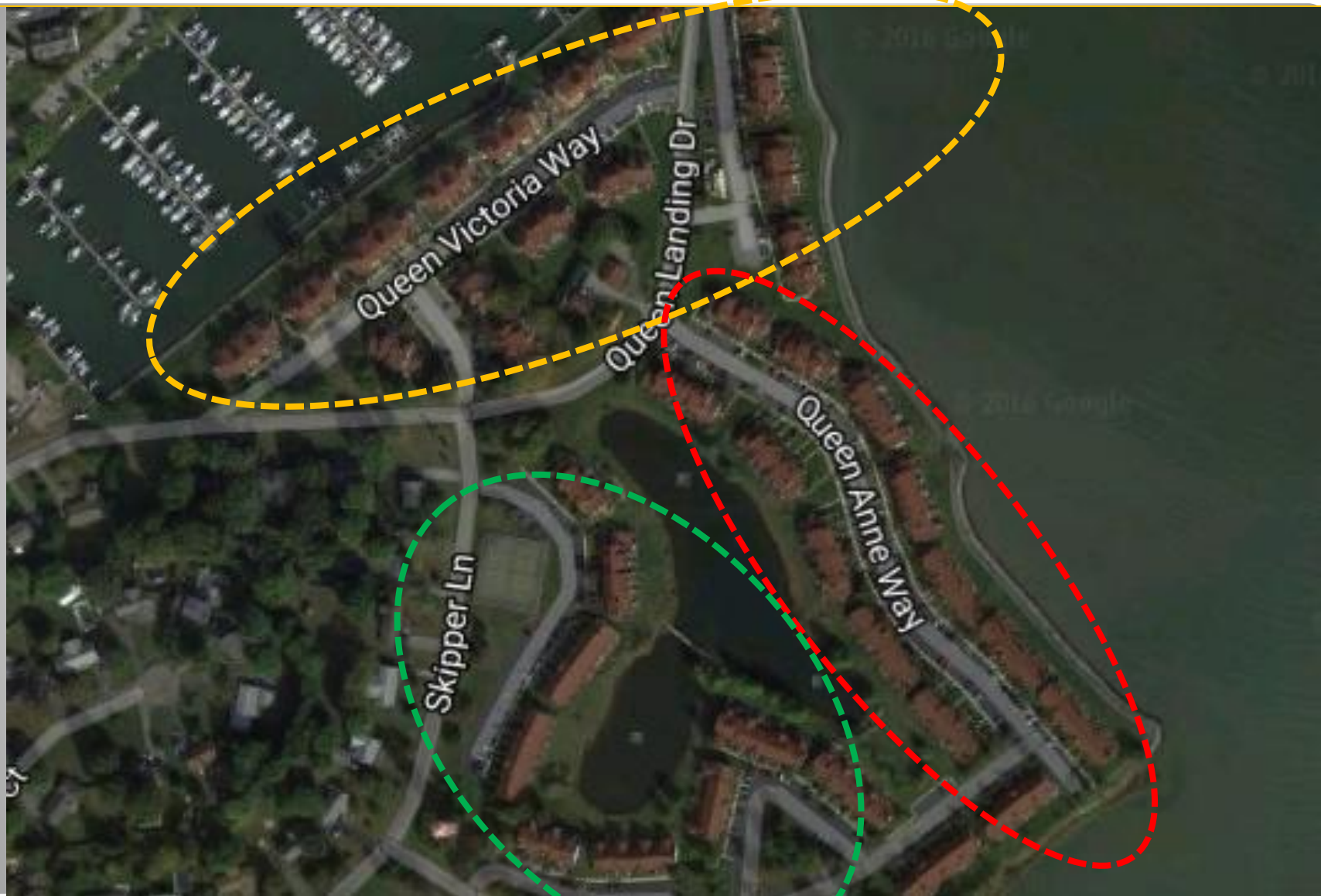
**Angry Protesters at the Gate!**







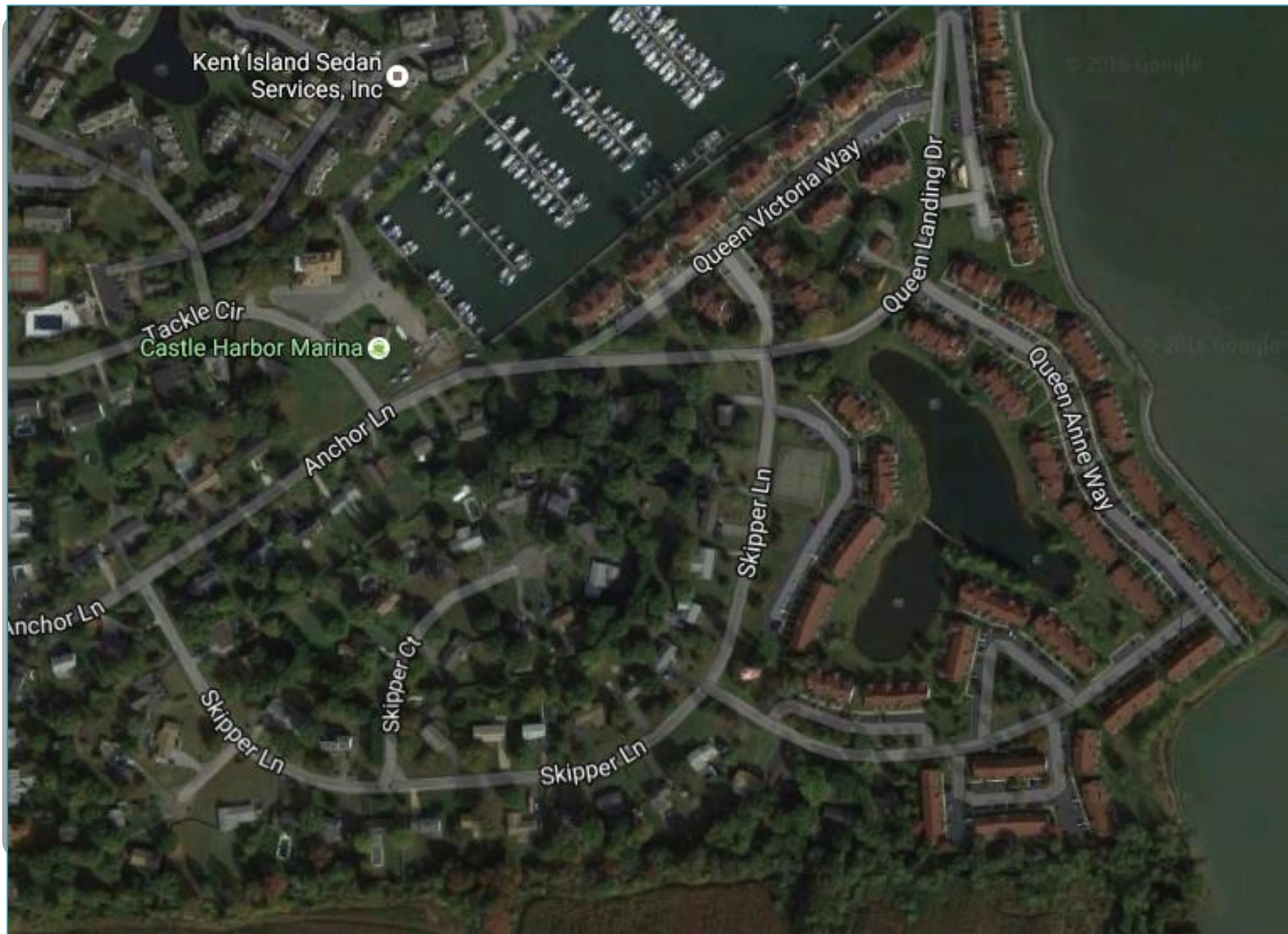














# **Budgeting and Funding for Stormwater Ponds**

## **Challenge:**

- **Budget funding for “long-term”, “large-ticket” expenditures.**
- **Spread funding equitably over time.**

# **Replacement Reserve Study**

- **Established and accepted budget forecasting system.**
- **Based upon:**
  - **Replacement Costs**
  - **Remaining Useful Life**
- **Analyses required annual funding**



# **Replacement Reserve Study**

- **Used successfully for 30+ years by:**
  - **Condos, HOAs Coops, Timeshares (CIC's)\***
  - **Country Clubs & Yacht Clubs\***
  - **Religious Institutions & Private Schools\***
  - **Municipal Governments**
  - **Commercial Properties**

# **IRS Guidelines for *CIC's***

- **Specific monies for specific projects;**
- **Separate bank Account;**
- **Only “Capital Expenditures”;**
- **No “Maintenance & Operations” expenditures;**



# **Expense Classification**

**“Capital Expenditures”  
Versus  
“Maintenance & Operations  
Costs”**

# IRS Guidelines:

- A normal, annual and anticipated expense cannot be a “Capital Expenditure”; it must be considered a “Maintenance Expense”.



# Cost Threshold Consideration

## Established by Policy of the Board of Directors:

Life of 3 yrs or more and  
Cost more than X



**Capital Expenditure**

Life of less than 3 yrs  
and Cost less than X

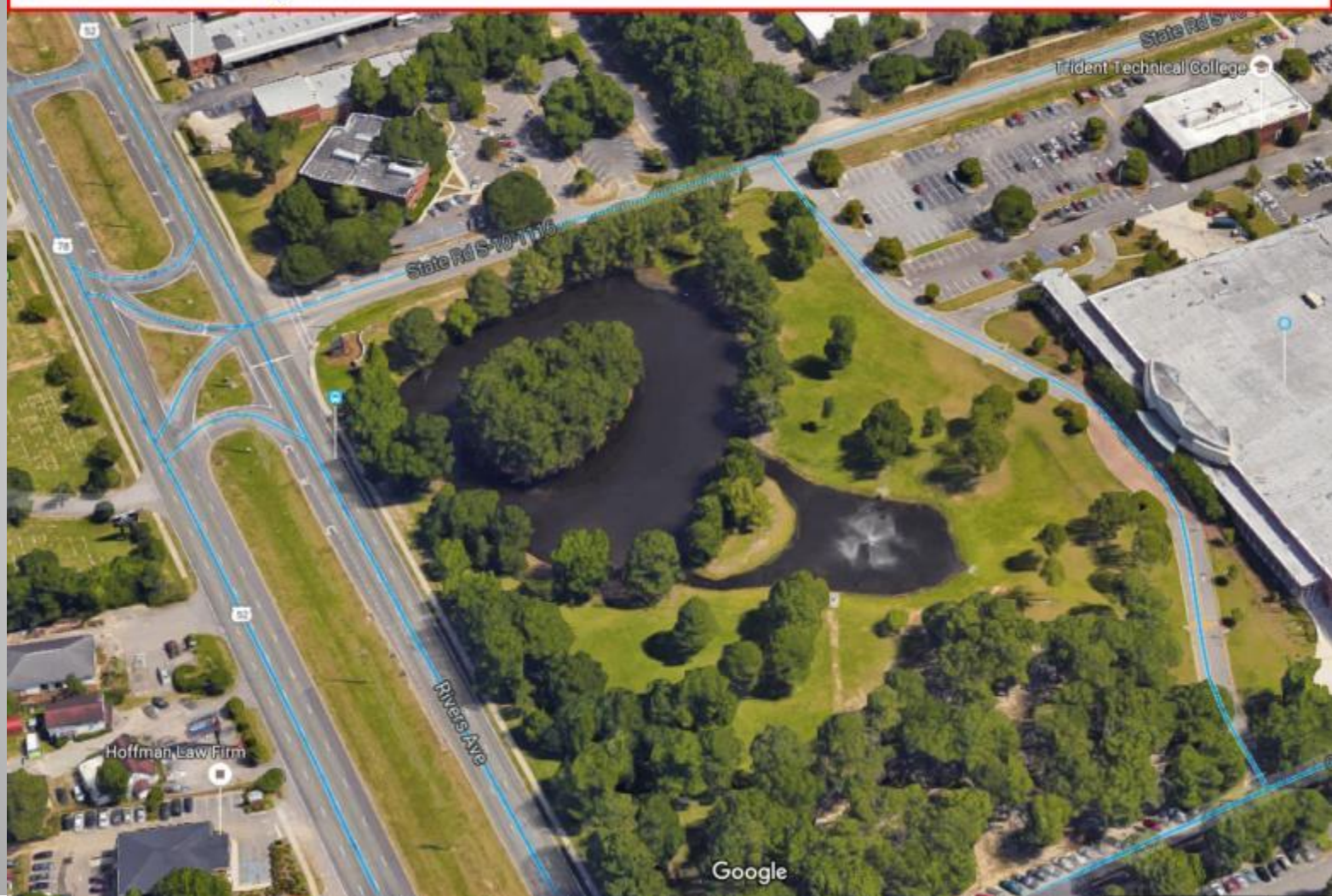


**Maintenance &  
Operations Cost**

# **Reserve Study Sample**

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## Trident Technical College Pond







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# Cost for typical 1.0 acre pond(5-8' depth), 1,000' shoreline

Cost for typical 1.0 acre pond(5-8' depth), 1,000' shoreline	Pond Service
\$1,000-\$3,000/year	Water Management-Chemical applications
\$3,000-\$5,000/year	Water Management-Bacteria applications
\$200-\$400	10-12" Triploid Grass Carp(20 fish/acre)
\$200-\$500	Blue Tilapia(200-400 fish/acre)
\$2,000-\$4,000	Aeration-1 hp aerating fountain
\$3,000-\$5,000	Aeration-2 diffuser bottom aeration unit
	<b>Mosquito abatement</b>
\$1,500-\$2,500/yearly	-chemical
\$400-\$1,000	-biological( <u>Gambusia</u> , Bluegill, dragonfly, etc.)
	<b>Dredging-removal of 3' depth-est. 4800 cubic yd</b>
\$200,000-\$400,000	-hydraulic dredging
\$100,000-\$300,000	-heavy equipment dredging
\$50,000-\$70,000	-hauling
	<b>Upland Shoreline restoration</b>
\$5,000-\$10,000	-upland planted shoreline
\$5,000-\$10,000	- <u>regrade</u> and <u>hydroseed</u>
\$15,000-\$25,000	-reinforced shoreline(turf reinforcement)

# Cost for typical 1.0 acre pond(5-8' depth), 1,000' shoreline (cont.)

	<b>Upland Shoreline restoration</b>
\$5,000-\$10,000	-upland planted shoreline
\$5,000-\$10,000	-regrade and hydroseed
\$15,000-\$25,000	-reinforced shoreline(turf reinforcement)
	<b>Lower Shoreline restoration</b>
\$10,000-\$20,000	-reinforced aquatic planting-coir log and wetland carpet
\$3,000-\$5,000	-Bare root aquatic planting
\$500,000-\$1,000,000	-stonework or bulkhead
\$70,000-\$130,000	-rip-rap
\$500-\$5,000	Engineering consultation
	<b>Storm water feature repairs</b>
\$400-\$1,500	Trash grates and outfall covers
\$7,000-\$13,000	Inflow rip-rap repairs(estimate 50')
\$2,000-\$5,000	Clogged pipe cleaning-Vacuum truck
\$500-\$1,000	Trash and minor debris removal
\$2,000-\$5,000	Vegetation and Debris removal
\$5,000-\$10,000	Tree and branch removal



**SITE COMPONENTS****PROJECTED REPLACEMENTS AND EXCLUDED ITEMS**

ITEM #	ITEM DESCRIPTION	UNIT	NUMBER OF UNITS	UNIT REPLACEMENT COST (\$)	NORMAL ECONOMIC LIFE (YRS)	REMAINING ECONOMIC LIFE (YRS)	REPLACEMENT COST (\$)
1	Pond Dredging, hydraulic	acre	3	\$300,000.00	10	5	\$780,000
2	Spoils Hauling & Disposal	acre	3	\$60,000.00	10	5	\$156,000
3	Bog Dredging, mechanical	acre	0	\$200,000.00	50	none	\$30,000
4	Bog Spoils Hauling & Disposal	acre	0	\$60,000.00	50	none	\$9,000
5	Aerating Fountain	each	1	\$20,000.00	14	7	\$20,000
6	Fountain Pump & Motor, 20 hp	each	1	\$8,500.00	14	none	\$8,500
7	Rip-rap major repair	lf	50	\$10,000.00	5	3	\$500,000
8	Outfall Structure repair, allowance	ls	1	\$25,000.00	5	5	\$25,000
9	Bank Stabilization, allowance	ls	1	\$10,000.00	5	none	\$10,000
	Shoreline Reinforcement	ls	1				EXCLUDED
	Tree Branch Removal	ls	1				EXCLUDED
	Clogged Inlet & Outflow Pipes	ls	1				EXCLUDED
	Engineering Consultation	ls	1				EXCLUDED
	Inspections	ls	1				EXCLUDED
SITE COMPONENTS - Replacement Costs - Subtotal							\$1,538,500

Inspections	Is	1	EXCLUDED
SITE COMPONENTS - Replacement Costs - Subtotal			\$1,538,500

## SITE COMPONENTS

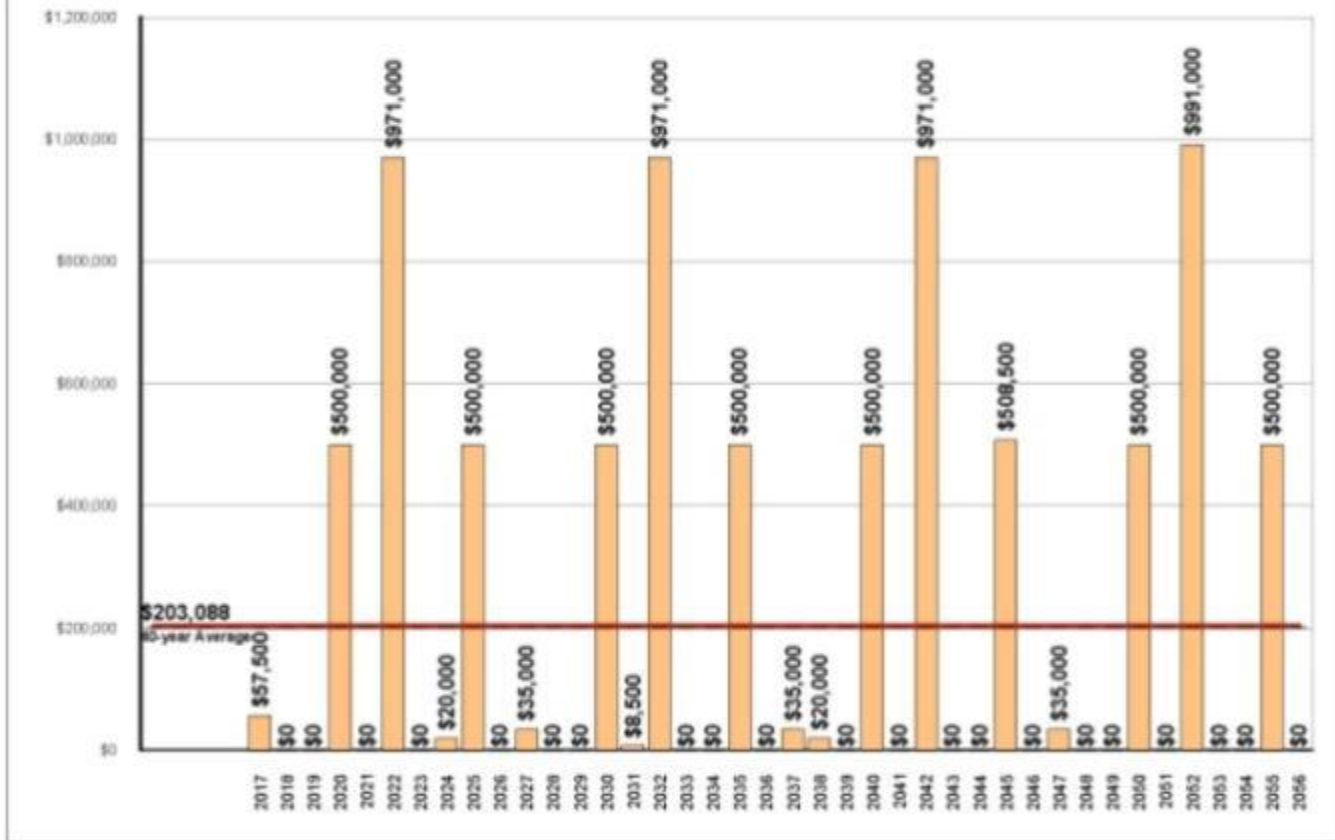
### COMMENTS

- Pond surface area is approximately 2.6 acres. Assume 1/3 cubic yards of spoils per square yard of surface pending bathymetric study.
- Bog surface is approximately .15 acre. Assume 2/3 cubic yards of spoil per square yard of surface area. NOTE: This will not be a re-occurring expense.
- NOTE: Only "Capital Expenditures" allowed in a CIC Reserve Study.
- Maintenance and Operations" expenses are not allowed in CIC Reserve Study.
- Excluded items are examples of "Maintenance and/or Operations" expenses.



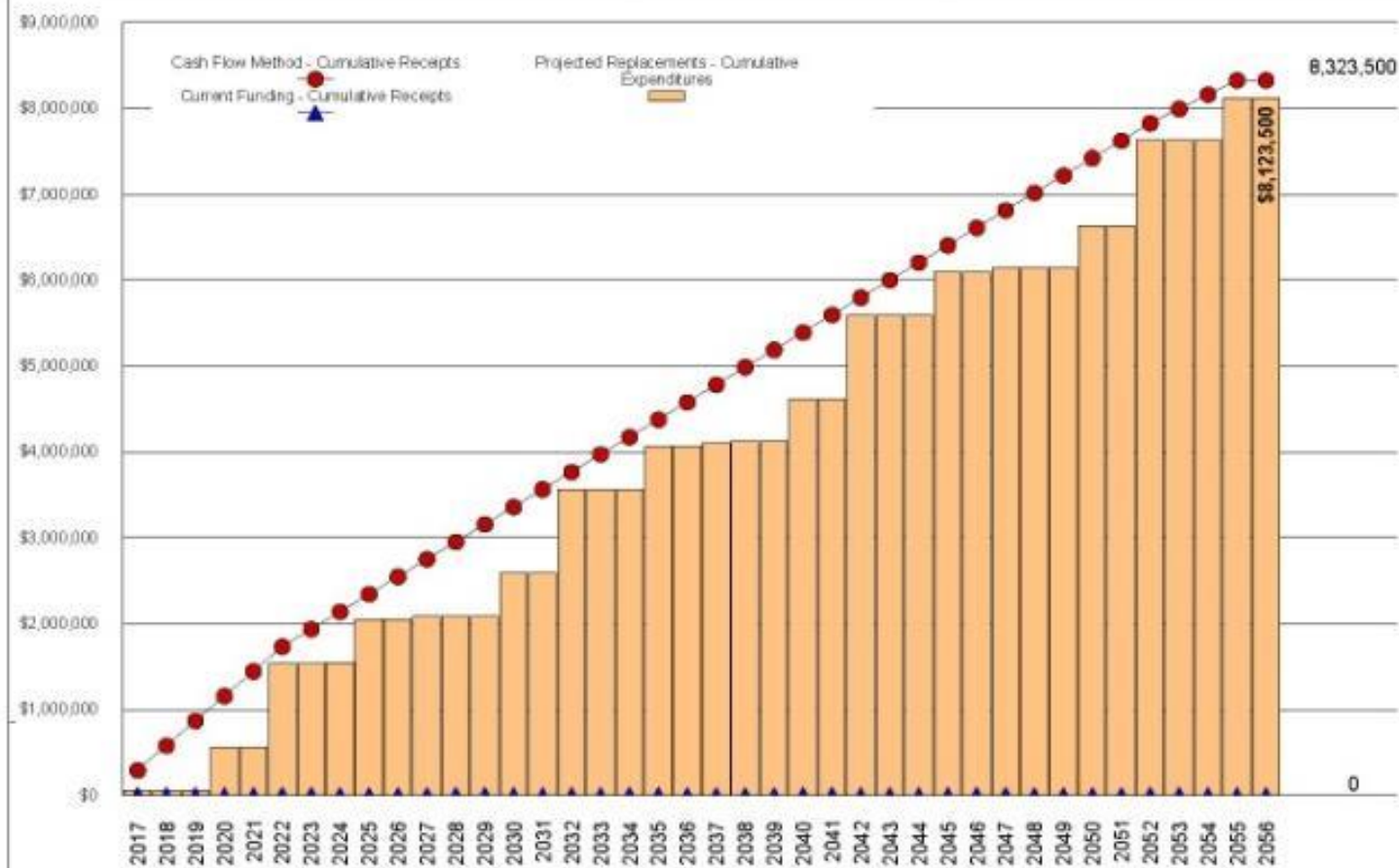
## #2 - Annual Expenditures for Projected Replacements Graph

This graph shows annual expenditures for Projected Replacements over the 40-year Study Period. The red line shows the average annual expenditure of \$203,088. Section C provides a year by year Calendar of these expenditures.





### #1 - Cumulative Replacement Reserve Funding and Expenditures Graph



The Current Funding Objective as calculated by the Component Method (Fully Funded) is \$540,471 making the reserve account 0.0% funded. See the Appendix for more information on this method.

Facility is located in North Charleston, SC on SE corner of Rivers Avenue and State Road 10-1116.

### #5 - Cash Flow Method - Table of Receipts & Expenditures - Years 1 through 40

Year	2017	2018	2019	2020	2021	1st Peak - 2022	2023	2024	2025	2026
Starting Balance										
Projected Replacements	(\$57,500)			(\$500,000)		(\$971,000)		(\$30,000)	(\$500,000)	
Annual Deposit	\$288,083	\$288,083	\$288,083	\$288,083	\$288,083	\$288,083	\$283,450	\$283,450	\$203,450	\$283,450
End of Year Balance	\$230,583	\$518,667	\$806,750	\$564,833	\$862,917	\$200,000	\$483,450	\$566,900	\$280,350	\$483,900
Cumulative Expenditures	\$57,500	\$57,500	\$57,500	\$667,500	\$957,500	\$1,528,500	\$1,528,500	\$1,548,500	\$2,048,500	\$2,048,500
Cumulative Receipts	\$288,083	\$576,167	\$864,250	\$1,152,333	\$1,440,417	\$1,728,500	\$1,931,950	\$2,135,400	\$2,338,850	\$2,542,300
Year	2027	2028	2029	2030	2031	2nd Peak - 2032	2033	2034	2035	2036
Projected Replacements	(\$35,000)			(\$500,000)	(\$9,500)	(\$971,000)			(\$500,000)	
Annual Deposit	\$203,450	\$203,450	\$203,450	\$203,450	\$203,450	\$203,450	\$283,025	\$283,025	\$203,025	\$283,025
End of Year Balance	\$862,250	\$865,700	\$1,069,150	\$772,600	\$867,550	\$200,000	\$483,025	\$686,050	\$309,075	\$512,100
Cumulative Expenditures	(\$2,083,500)	(\$2,083,500)	(\$2,083,500)	(\$2,583,500)	(\$2,582,000)	(\$3,583,000)	(\$3,583,000)	(\$3,583,000)	(\$4,083,000)	(\$4,083,000)
Cumulative Receipts	\$2,745,750	\$2,949,200	\$3,152,650	\$3,356,100	\$3,559,550	\$3,763,000	\$3,966,025	\$4,169,050	\$4,372,075	\$4,575,100
Year	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Projected Replacements	(\$35,000)	(\$30,800)		(\$500,000)		(\$971,000)			(\$500,500)	
Annual Deposit	\$203,025	\$203,825	\$203,025	\$203,825	\$203,825	\$203,025	\$283,025	\$283,025	\$203,025	\$283,025
End of Year Balance	\$680,125	\$683,150	\$1,086,175	\$789,200	\$872,225	\$204,250	\$487,275	\$610,300	\$304,825	\$587,850
Cumulative Expenditures	(\$4,098,000)	(\$4,118,800)	(\$4,118,000)	(\$4,618,000)	(\$4,618,000)	(\$5,589,000)	(\$5,589,000)	(\$5,589,000)	(\$6,087,500)	(\$6,087,500)
Cumulative Receipts	\$4,778,125	\$4,881,150	\$5,184,175	\$5,387,200	\$5,590,225	\$5,793,250	\$5,986,275	\$6,189,300	\$6,402,325	\$6,605,350
Year	2047	2048	2049	2050	2051	3rd Peak - 2052	2053	2054	4th Peak - 2055	2056
Projected Replacements	(\$35,000)			(\$500,000)		(\$991,000)			(\$500,000)	
Annual Deposit	\$203,025	\$203,825	\$203,025	\$203,825	\$203,825	\$203,025	\$166,667	\$166,667	\$166,667	
End of Year Balance	\$675,875	\$678,800	\$1,081,825	\$784,850	\$867,875	\$200,000	\$366,667	\$533,333	\$200,000	\$200,000
Cumulative Expenditures	(\$8,132,500)	(\$8,132,500)	(\$8,132,500)	(\$8,632,500)	(\$8,632,500)	(\$7,623,500)	(\$7,623,500)	(\$7,623,500)	(\$8,123,500)	(\$8,123,500)
Cumulative Receipts	\$8,808,375	\$7,011,400	\$7,214,425	\$7,417,450	\$7,620,475	\$7,823,500	\$7,980,167	\$8,146,833	\$8,323,500	\$8,323,500

## EXECUTIVE SUMMARY

The TTC Pond Replacement Reserve Analysis uses the Cash Flow Method (CFM) to calculate Replacement Reserve funding for the periodic replacement of the 9 Projected Replacements identified in the Replacement Reserve Inventory.

**\$288,083**

### **RECOMMENDED REPLACEMENT RESERVE FUNDING FOR THE STUDY YEAR, 2017**

\$24,006.94 Per unit (average), minimum monthly funding of Replacement Reserves

We recommend the Association adopt a Replacement Reserve Funding Plan based on the annual funding recommendation above. Inflation adjusted funding for subsequent years is shown on Page A5.

TTC Pond reports a that the Association is currently not funding Replacement Reserves.

This Study contains the information necessary for the Association to develop a Funding Plan to address the \$8,123,500 of Projected Replacements identified in the Replacement Reserve Inventory over the 40-year Study Period.

# questions